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By- Heger, Herbert K.

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The Miniaturized Interaction Analysis System (Mini-TIA) was developed to permit improved analysis of classroom communication in conjunction with video taping. Each of seven verbal event categories is subdivided into two categories according to the nature of the nonverbal events paralleling them. Integrated into the system are (1) defined verbal and nonverbal dimensions; (2) categories reflecting the personal, content, and institutional aspects of classroom tasks; (3) categories designed to permit encoding on purely behavioral evidence; and (4) categories which are few in number, symmetrical, and easy to use. Categories were developed from three key concepts about teaching: (1) Both teachers and students have classroom roles; these include, for teachers, an institutional or control role, a knowledge conveyance role, or a role as developer for student personalities, and for students, a learner role or a role as a developing personality. (2) The interaction process is the sum of verbal and nonverbal events, usually in some combination. (3) Work with Flanders' Interaction Analysis System has demonstrated the desirability of maintaining the direct-indirect teaching concept. Preliminary work with Mini-TIA has demonstrated that the system is functional and effective in focusing the attention of education students on key behaviors. Also, Mini-TIA permits statistical computation of observational data. (SG)

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ANALYZING VERBAL AND NONVERBAL CLASSROOM COMMUNICATIONS

by Herbert K. Heger
The Ohio State University
Summer, 1968

Introduction

The advent of the portable videorecorder has opened new dimensions in the analysis of classroom events. At last teacher educators and educational researchers have an economical means to preserve and reproduce the communication and behavior events of the classroom. The potential of this new instrument is partially manifest by the ever growing variety of research and teacher preparation projects which incorporate video recording.

The Education 435 staff at The Ohio State University began developing means of incorporating video taping into an already sophisticated general secondary methods course during the Fall Quarter, 1967. The course has incorporated practice lessons and The Flanders Interaction Analysis System ever since the developmental research carried out by Hough (1963). The problems of integrating the video dimension into this laboratory course were very similar to those identified by Johnson (1968). The students were generally very enthusiastic about videotaping their lessons and were fully cooperative with the venture. However, the student attention was focused on the cosmetic and little significant cognative knowledge about teaching behavior or communication resulted from these exercises. A need for an analytical tool was readily apparent from the first quarter's work with videotaping.

Development of A New Instrument

During the Winter Quarter, 1968, the miniaturized Interaction Analysis System (Mini-TIA) was developed to overcome the problems of integrating video tape into Education 435. The existing work of Flanders, Hough, Galloway, Duncan and French provided a sound base for the development of the new tool. Care was taken to integrate four unique characteristics into the system:

1) Carefully defined verbal and nonverbal dimensions with special emphasis on the conceptual distinctions between them.

2) Categories reflecting the personal, content and institutional aspects of classroom tasks.

3) Categories which are carefully designed to permit encoding on purely behavioral evidence.

4) Categories which are few in number, are symmetrical and permit ease of instruction.

The Mini-TIA system was introduced to Education 435 students during the Spring Quarter of 1968. Several encouraging results were obtained:

1) The system is functional. It can be taught and students can achieve reliability. Thirty-nine of fifty-two subjects voluntarily achieved a reliability level of .60 on a single viewing of a complex fifteen-minute lesson.

2) The system has served effectively as a means of focusing student attention upon key behavior phenomena.

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3) The development of this system has produced a clearer definition of the verbal and nonverbal dimensions of communication.

4) The Mini-TIA system also has shown significant research potential.

Research plans have been made to carry out a more detailed analysis of behavior change among Education 435 students as the result of the incorporation of videotaping and Mini-TIA into the course. The instrument will also be applied to student teachers in the inner city and to the analysis of student perception of teacher behavior. Long range development potential appears to exist in the integration of Mini-TIA with French's event system and a Content Analysis (CAS) which is under development by Duncan and Hill.

Analyzing Classroom Communication

Mini-TIA provides the educator with a technique for constructing a representation of the condition of classroom interaction which is somewhat analagous to medical techniques of building an image of the condition of a patient's heart. The physician develops an image of the heart's condition without direct examination. Rather, he observes blood pressure and listens to the sounds of the patient's chest and synthesizes the image of the heart's condition from this observable evidence. With classroom communication direct observation is impossible at the current state of educational research. We know that interaction is that mysterious zone between the sender and receiver, but we cannot see it.

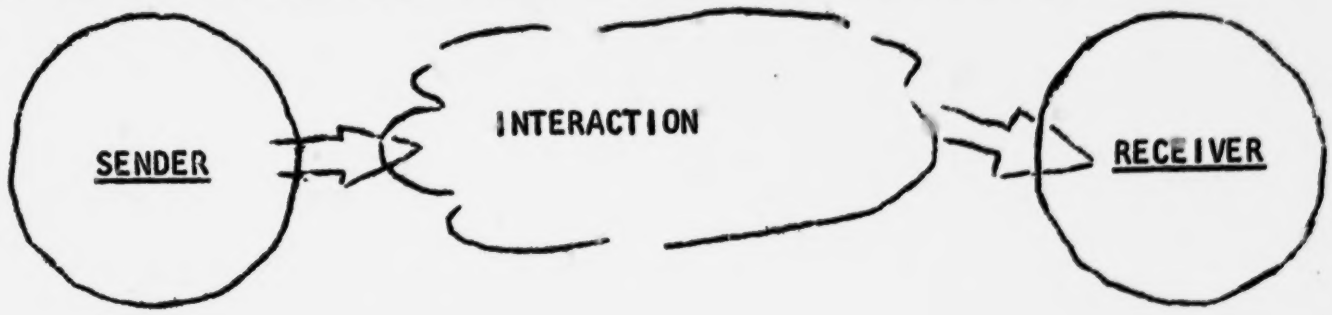

Figure 1

A Representation of the Interaction Process

Yet it is possible to observe symptoms of interaction: symptoms which take the form of behaviors at the two ends of the interaction chain. The behaviors of the sender and of the receiver are symptomatic of the interaction and provide indications of the nature and effect of the communication. Mini-TIA establishes a conceptual framework for the observation and recording of the symptomatic behaviors of the teacher and of the class thereby providing a means for the evaluation of the classroom interaction process.

The Components of Interpersonal Communication

The medium of interpersonal communication is composed of two components which are defined for the purpose of Mini-TIA as verbal and nonverbal. The precise definitions of these terms is critically important because the terms do not merely refer to spoken and unspoken interaction. The term verbal can be defined as that which consists of or has to do with words, only. Nothing in Webster's definition allows for the inclusion of intonations in the delivery of the words. By contrast nonverbal interaction is more than the gestures and mannerisms which accompany the words. Nonverbal interaction includes the intonations of delivery as well as those mannerisms which are commonly recognized as nonverbal.

Verbal interaction includes only the denotative meaning of the words used in the total interaction. Langer's concept of discursive communication matches the verbal dimension of interaction (Davitz, p. 38). Discursive communication is that communication which possesses clearly defined meaning, syntax, and order.

Although Langer's definition of the complementary phase of communication has been questioned, her main criterion of nondiscursive communication serves the nonverbal phase of interaction well. The content of this phase is interpreted on an intuitive basis. That is, the nonverbal component of interaction is the less formal and less rigid area of gestures, mannerisms, intonations, inflections and manipulations of pace. This is the component which carries much of the emotional message of the interaction.

The definition of verbal and nonverbal does not correspond to the aural and visual dimensions of interaction. Nonverbal interaction includes all of the visual dimension and, in addition, includes certain affective portions of the aural dimension such as inflections. Verbal interaction is restricted to the formal language used in the message.

It is interesting to note that teacher and pupil, alike, are conditioned to restrain their verbal utterances and communicate only a portion of their intent in this dimension. The nonverbal expression, by contrast, is a much more open mode of interaction in which teacher and student more nearly reveal their true feelings or intent. Hence, the nonverbal dimension of communication can provide greater depth in meaning than the verbal and thereby provides a potent resource for behavior and communication analysis.

The Mini-TIA Categories

The success of the Flanders Interaction Analysis System had demonstrated the value of this approach to studying classroom interaction. Yet there were significant omissions in the structure of the Flanders system. The most critical omission was the failure to include nonverbal interaction. This omission was serious because interaction in a classroom or elsewhere is really the sum of verbal and nonverbal events; the total interaction process is both verbal and nonverbal. The categories of the new system have been developed from three (3) key concepts regarding the teaching process.

1) Both the teacher and the student have various classroom roles which may be classified as follows:
   a. Teacher's institutional or control role
   b. Teacher's teaching or knowledge conveyance role
   c. Teacher's role in the development of the student personalities
   d. Student's role as a learner
   e. Student's role as a developing personality

2) That interaction as a process is the sum of verbal and nonverbal events and that the interaction process only rarely involves either verbal or nonverbal dimensions alone.

3) That work with the Flander's System has affirmed the desirability of maintaining the direct-indirect teaching concept. The educator who is familiar with the Flander's system will recognize the indirect teaching behavior (Flander's categories 1,2,3) in Mini-TIA categories 1 and 2. Flander's direct teaching behaviors are found in Mini-TIA categories 4+ and 4-. (See page 4)

Figure 2

The Mini-TIA Categories

ROLE	CATEGORY NUMBER	VERBAL EVENTS	NONVERBAL EVENTS		
The teacher's role in personal development of the students	1	REINFORCEMENT BY THE TEACHER: Teacher accepts student feeling, praises, encourages student. Any teacher expression reinforcing student except use of student idea	+	vs	-
			Sincere	vs	Insincere
			Supportive	vs	Non-supportive
			Appropriate	vs	Excessive
	2	USE OF STUDENT IDEA BY THE TEACHER: Significant development of idea first introduced by a student. More than a mere repetition of idea.	+	vs	-
			Implementing	vs	Perfunctory
			Sincere	vs	Insincere
			Supportive	vs	Non-supportive
			Appropriate	vs	Excessive
The teaching role	3	CONTENT PRESENTATION BY TEACHER: Teacher lectures and questions.	+	vs	-
			Spirited	vs	Monotonous
			Responsive	vs	Unresponsive
			Congenial	vs	Uncongenial
The institutional role	4	CONTROL OF STUDENTS BY TEACHER: Teacher directs, commands, orders, corrects, criticizes or justifies authority.	+	vs	-
			Facilitating	vs	Punitive
			Adjusting	vs	Corrective
			Concerned	vs	Distainful
The learning role	5	STUDENT TALK ABOUT CONTENT: All student talk which is relevant to student learning whether directly connceted to lesson pattern or not.	+	vs	-
			Responsive	vs	Unresponsive
			Supportive	vs	Non-supportive
			Eliciting	vs	Supressing
The personal growth role	6	STUDENT TALK ABOUT PERSONAL NEEDS: All student talk which is unrelated to any cognative learning but which relates to personal needs, desires, sants, or frustrations.	+	vs	-
			Supportive	vs	Non-supportive
			Eliciting	vs	Supressing
			Concerned	vs	Distainful
	7	SILENCE OR MULTIPLE TALKING:	+	vs	-
			Comfort	vs	Distress
			Purposeful	vs	Aimless
			Productive	vs	Non-productive

Note that each of the verbal categories is subdivided into two categories according to the nature of the nonverbal events that parallel the verbal events. Hence there are 14 categories in the system: 1+, 1-, 2+, 2-, etc.

Recording Mini-TIA

The Mini-TIA observer records a sample of the classroom interaction every three seconds for the duration of the lesson. It is not necessary, however, to make a detailed and instantaneous judgement each three seconds; the concern of the observer is with EVENTS rather than microscopic mannerisms. Therefore, the observer may record a series of dots until he is absolutely certain of the proper category designation. Then he records the category symbol. The sample shown below demonstrates how an observer has left dots where the event continued and before he made his judgement of the proper category designation. Each sequence of dots has the category designation of the first number of dots.

Notice that the recorded columns are 20 tallies long. At three seconds per tally each column represents one minute of classroom interaction thereby providing a convenient method of locating tallies and or particular bits of interaction. The sample at the left is two minutes three seconds long.

Once the interaction has been recorded in tally form the numbers are paired so that they may be recorded in the Mini-TIA matrix. The first number of each pair is placed in the row of the matrix and the second number represents the column of the matrix. In the sample the number pairs are 7-,3-; 3-,3+; 3+,3+ and so forth. The first pair (7-,3-) is recorded in the 7- row and the 3- column. After all tallies have been recorded a total for each row and column is computed. The row and column totals match providing a means of checking the matrix construction process. The percentages and evaluation formulae are then constructed.

Figure 3

Sample:

7+	6+
.	.
.	7-
.	.
.	.
.	.
.	.
4+	.
.	4+
.	.
.	. } 4+
.	.
.	4+
.	.
.	. } 1+
4-	.
.	1+
.	.
.	. } 6+
.	.

Figure 4

Sample:

(7-
3-)
(3+
3+)
(6-
6-)
(1+
1+)
(6+
2+

Mini-TIA Interpretation

The results of Mini-TIA as recorded in the matrix and by the statistics can be interpreted at various levels of sophistication. The percentages and statistics reveal some information while the tallies within individual cells reveal other facts. The comparison of stable and transitional cells provides further knowledge. Unique to this system however, is the existence of zones in the matrix which represent larger areas of interaction than the individual categories. These zones are subject to the same kind of interpretation as individual cells. Stable and transitional zones also exist. It is also possible to reconstruct the most frequently used teaching cycles through the use of modeling (see Appendix). Modeling usually produces significant results.

More important than the mechanical details of matrix interpretation are the considerations of teacher purpose. As a pure research tool the data revealed by the matrix may be taken as evidence of what the teacher actually did, as a measure of the kind of interaction that existed in the particular lesson. As such the system provides a means of objective information collection and objective data processing. Nothing in this system can determine what ought to be; the system cannot be used in isolation to determine which teachers are good teachers.

As a means of instruction and evaluation of teachers the Mini-TIA technique has great promise so long as the teacher who is the subject of the analysis is actively involved in the learning or evaluation process. All results of this system must be interpreted in the light of the teacher's objectives. Whether a particular kind of teaching cycle or a particular percentage of negative non-verbal events is good or bad, effective or ineffective, commendable or contemptible depends entirely upon the intent and purpose of the lesson which the teacher was developing. Mini-TIA has great potential in giving the teacher feedback on the actual conduct of the lesson which she can evaluate according to her goals. But this value remains only so long as the instrument remains a tool and does not become an end in itself.

APPENDIX

Ground Rules for Mini-TIA Recording

1. Recording Mini-TIA requires that the observer LOOK at the teacher AND class to record the nonverbal dimension of the interaction.

2. Record EVERY change in the interaction even if the change occurs between the three second intervals. Compensate for excess tallies by slowing the subsequent recording pace.

3. Try to record 20 tallies per minute...the absolute minimum is 17 tallies per minute and the maximum is 22 tallies per minute.

4. Do not change categories until the change is CLEARLY evident in the interaction. React to the total interaction; react to the overall tone of the event as revealed by both verbal and nonverbal events.

5. The observer must attempt to record the interaction from the point of view of the student as much as possible.

6. Use a 7+ tally to start and end the lesson. Also insert a 7+ between two student speakers. This provides a demarkation between otherwise continuous 5's and 6's.

7. The repetition of a student answer by the teacher can constitute elicitation or praise (category 1) or it might be a speaking habit which should be recorded as a 3. The use of a student idea (category 2) refers to genuine use of the idea. That is, the idea is developed and becomes a part of the framework of the lesson. Do not record a 2 for insincere use of student ideas...mere repetition of the student idea is a 3. Record the 2 when it is clear that the teacher is actually using or developing the idea.

8. A teacher joke is recorded as a category 1+ if the joke relieves tension and is not made at student expense. If the joke makes fun of the students record a 4-.

9. Student recitation in unison is a category 5. Group work that does not have a single focus of attention is a category 7.

10. 3- includes such teacher behaviors as looking out the window or looking at the chalkboard for an excessive period. The minus is assigned whenever there is a breakdown in the interaction, a lack of congruence or a mis-interpretation of the interaction by either the teacher or the students.

Matrix Interpretation

		Personal Development						Content				Control			
		1+	2+	6+	1-	2-	6-	3+	5+	3-	5-	4+	4-	7+	7-
Personal Development	1+	A													B
	2+		A												B
	6+	D		A											B
	1-				A										B
	2-					A									B
	6-						A								B
Content	3+							A							B
	5+								A	E					B
	3-									A					C
	5-										A				B
Control	4+	C	C	C	C	C	C	C	C	C	C	A	C	C	B
	4-												A		B
	7+													A	B
	7-														A
	T														
	%														

A - continuing interaction in same category: steady state cells
B - column sample → negative silence following another category
C - row sample → positive control proceeds another category
D - sample zone → positive personal development zone
E - sample zone → content transmission zone

Statistical Computations

There are many interesting computations that may be made with the data revealed by the Mini-TIA matrix. In fact, one of the major tasks in the development of the system is to establish which statistics are most revealing. For the time being, the following statistics are in use:

1. Summary percentages:

   a. Positive personal development: Add percentages in 1+,2+,6+
   b. Negative personal development: Add percentages in 1-,2-,6-
   c. Positive content transmission: Add percentages in 3+,5+
   d. Negative content transmission: Add percentages in 3-,5-
   e. Positive control 4+ alone
   f. Negative control 4- alone
   g. Positive silence 7+ alone
   h. Negative silence 7- alone

2. P/C ratio: Ratio of positive personal development to control: $\frac{\Sigma 1+, 2+, 6+}{\Sigma(4+),(4-)} = a.\text{RAT}$

3. Teacher congruence ratio: $\frac{\Sigma 1+, 2+, 3+, 4+}{\Sigma 1+, 1-, 2+, 2-, 3+, 3-, 4+, 4-} \times 100 = a\%$

4. Elicitation ratios:

$$\frac{\Sigma 1+, 2+}{\Sigma 1+, 1-, 2+, 2-, 3+, 3-, 4+, 4-} \times 100 = a\%$$

and $\frac{\Sigma 1+, 2+}{\Sigma 5+, 6+}$.

A Sample Matrix: Six-Minute Education 435 Lesson

	1+	2+	6+	1-	2-	6-	3+	5+	3-	5-	4+	4-	7+	7-	T
1+							5	2							7
2+		19					5	1							25
6+				1			1								0
1-			1				1								0
2-							1								0
6-		1					1								0
3+	1						31	21			1				53
5+	7	6					11	3	1		1				29
3-								1							1
5-															0
4+								1					1		2
4-															0
7+							1								1
7-															0
T	7	25	0	0	0	0	53	29	1	0	2	0	1	0	11
%	6	21	0	0	0	0	44	24	1	0	2	0	1	0	

Teaching Cycles:

3+,3+,5+ ...
3+,3+,5+,1+ ...
3+,3+,5+,2+,2+ ...

BIBLIOGRAPHY

Amidon, Edmund J. Project on Student Teaching. Philadelphia: Temple University, (USOE Cooperative Research Project 2873), 1968.

Amidon, Edmund J. and Flanders, Ned A. The Role of the Teacher in the Classroom. Minneapolis: Association for Productive Teaching, 1967 edition.

Amidon, Edmund J. and Hough, John B., editors. Interaction Analysis: Theory, Research and Application. Reading, Mass.: Addison-Wesley, 1967.

Bellack, Arno A., Davitz, J. R. in collaboration with Kliebard, H. M. and Hyman, R. T. The Language of the Classroom: Meanings Communicated in High School Teaching. New York: Teachers College, Columbia University (USOE Cooperative Research Project 1497), 1963.

Davitz, Joel R. The Communication of Emotional Meaning. New York: McGraw-Hill Book Company, 1964.

Duncan, James K. "Some Instructional Models and Strategies." Columbus, Ohio: The Ohio State University, unpublished paper, 1968.

Flanders, Ned A. Teacher Influence, Pupil Attitudes and Achievement. Washington, D. C.: Government Printing Office (USOE Cooperative Research Monograph #12), 1965.

Galloway, Charles M. An Exploratory Study of Observational Procedures for Determining Teacher Nonverbal Communication. Unpublished dissertation. Gainesville: University of Flordia, 1962.

Galloway, Charles M. "A Model of Teacher Nonverbal Communication." Unpublished paper prepared for the AACTE Workshop. Columbus, Ohio: The Ohio State University, 1968.

Galloway, Charles M. "Nonverbal Communication." The Instructor, LXXVII, No. 8, April, 1968, pp. 37-42.

Galloway, Charles M. "Teacher Nonverbal Communication." Educational Leadership, 24 (1966), pp. 55-63.

Galloway, Charles M. and French, Russell L. "A Description of Teacher Behavior: Verbal and Nonverbal." Unpublished paper. Columbus: The Ohio State University, 1968.

Heger, Herbert K. "A Preliminary Mini-Manual for Education 435 Courses Using Mini-TIA: Miniaturized Total Interaction Analysis System." Unpublished manual. Columbus: The Ohio State University, Spring, 1968.

Hyman, Ronald T. Teaching: Vantage Points for Study. Philadelphia: J.B. Lippincott Co., 1968.

Johnson, Rita B. "The Effects of Prompting, Practice and Feedback in Programmed Videotape." The American Educational Research Journal, V, No. 1, January, 1968, pp. 73-80.

Mead, George H. Mind, Self and Society. Chicago: The University of Chicago Press, 1934, 1962.

Smith, B. O. "A Study of the Strategies of Teaching" Mimeo. Urbana: University of Illinois, 1967.

Withall, John. "The Development of a Technique for the Measurement of Social-Emotional Climate in the Classroom." Journal of Experimental Education, 17 (March, 1949), pp. 347-361.